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## NOTES ON THE LARVÆ OF ARGYNNIS CYBELE, APHRODITE AND DIANA.

BY W. H. EDWARDS, COALBURGH, W. VA.

I am now able to give the results of my attempts at raising the caterpillars of the three Argynnides, *Cybele*, *Aphrodite* and *Diana*, from the egg, this past season. In August and early in September, 1873, females of *cybele* were easily obtained, and a few of *aphrodite*, which is a rare species here, and these were shut up in kegs, within which were placed pots of growing violets. The eggs were laid abundantly on the leaves and stems, and on the cloths which covered the kegs. There were soon several hundreds of *cybele* eggs, and many of *aphrodite*. About the same time, Mr. T. L. Mead, who was at Coalburgh, made an excursion to a region about fifty miles east of us, where *diana* had been previously found by him in some numbers, and brought back with him about sixty females, which were placed in kegs and boxes, also with violets either in pots or planted in earth in the boxes. Hundreds of eggs were so obtained of this species. The three species hatched in from seven to twelve days, and so far as was possible, the larvae at large were transferred to plants, but of course many were lost. In a few instances some of them were observed to feed on the leaves, but almost all began their hybernation at once after hatching, and fixed themselves on the under sides of the leaves, and especially in the grooves of the leaf-stems, where some of them were to be seen, extending quite down to the base of the stem. The three species were so nearly alike at this stage that *cybele* and *aphrodite* could not be distinguished apart by any glass I had, and *diana* differed almost imperceptibly from the others.

They were each about one-twentieth of an inch long, cylindrical, with brown heads; the body greenish brown, with rows of tuberculated darker colored spots, from each of which emanated a black hair.

As the weather became cool the plants gradually lost their leaves by drying up; mould began to attack the decaying leaves, and I was compelled to transfer the caterpillars to fresh plants, which at this season I had much trouble in providing. In fact I had to raise a number of plants from off-shoots in the house, to be ready for any emergency. The transfer was effected by using a pin bent at the point. The larvae would curl up when touched, and were easily hooked and so moved. When placed on the new plants they would soon straighten out, and change position sufficiently to make themselves comfortable. But as the process had to be repeated several times as the winter progressed, a great many of the larvae were lost. I placed the pots in a small greenhouse about the 1st of January, hoping to see the caterpillars revive and commence feeding, and had the satisfaction soon after of seeing this desired result take place. On the 9th of January I noticed some of the *cybele* were active and had been feeding; on the 21st, *aphrodite* and *diana*. They very soon began to increase in size perceptibly, and were active in running about the leaves and in wandering off the flower pots. I should have lost these lively ones had I not confined them to the plants by glass lamp chimneys and glass globes. But in these the air was no doubt too confined for an *Argynnis* caterpillar (though a *Grapta* would have thrived,) for many died; and I came near losing them all in a way that I had not provided for, the gardener having taken occasion one day, when I was absent from home, to smoke the entire house with tobacco, forgetting to remove my pots.

From this catastrophe emerged about a score of *cybele*, half a dozen *aphrodite*, and a few of *diana*. These larvae all throughout this period grew very slowly, no doubt owing to the cooling down of the house at nights, so that it was the 27th of January before I was able to see that any had passed the first moult. The first to change was *cybele*, which now appeared in a coat of smoky brown, covered with long fleshy spines, from which sprung many short black bristles. These spines were of the general appearance shown in the several successive moults. In all there were five moults to each of these species, and until the fourth they maintained their close resemblance to one another, so that had one from either lot escaped to another, I could not have separated them. They were cylindrical, thick, furnished with six rows of stout black spines, from the ends and sides of which sprung stiff bristles. The color of the body was silky brown or black, and at bases of part of the spines were yellow or fulvous spots. The heads were bilobed, brown or black, much tubercled,

with conical vertices, and the back of the head was yellow or fulvous; the spines of the second segment were rather longer than the rest and projected forward horizontally over the head. After the fourth moult there were some differences. *Cybele* became larger than *aphrodite*, though not varying much in other respects, the one measuring at maturity about two inches in length, and the other about one and a half inches. But *diana*, which was also large, like *cybele*, at the fourth moult, displayed spines of immense size, nearly twice the length of those of the other two species. These radiated from the central axis of the body, like spokes from the hub of a wheel, the lower lateral row drooping so that the ends were on the level of the feet. The spines of the second segment, four in all, two dorsal and two lateral, were a formidable protection to the head. It was a superb creature.

The mortality had been so great among all these larvae that at last, as they approached maturity, they were reduced to but three or four of *cybele*, two of *aphrodite*, and one of *diana*, and how to preserve these was a matter of much anxiety. I arranged a keg with a high gauze bag over the top of it, which bag was confined by the upper hoop, and in the keg were planted violets every two or three days, as the leaves were consumed. This plan seemed to answer well, affording plenty of air, and I regretted that I had not tried it sooner. The larvae were fond of resting high up the sides of the bag, or on elevated sticks under it, coming down when impelled by hunger. After remaining motionless for hours, they would suddenly arouse themselves and start off in extreme haste, wandering all round the enclosure, and when leaves were reached, would eat ravenously and then climb up to rest again. I sometimes found them extended on the earth, and no doubt they appreciated the coolness and dampness of it.

Only three *cybele* went into chrysalis. They spun buttons of white silk and soon hung suspended, nearly straight, the anterior segments but little bent, and so continued about two days, when the change to chrysalis occurred. The first change was on the 19th of May, and three months and ten days from the awaking from hybernation. The chrysalis yielded the imago in twenty-three or twenty-four days, and the whole period from the laying of the egg to the imago was just thirty-eight weeks. One *aphrodite* only fastened for chrysalis. This was on the 14th of May, and the change occurred on the 15th, an interval of about thirty-six hours. Unfortunately this insect died in chrysalis.

*Diana* fixed on the 17th, and became a chrysalis on the 19th, the interval being about fifty-four hours. This yielded a butterfly on the 9th of June, after twenty to twenty-one days. The chrysalids of the three bore a strong likeness to each other, being all of the same general shape, and I may say in brief that they would be tolerably represented by the figure of the chrysalis of *A. aglaia*, in Humphrey's British Butterflies, although much larger than that figure. The length of *cybele* and *diana* was rather over one inch; *aphrodite* was as long, but more slender than the others, and it, as well as *diana*, was prettily streaked and variegated in brown and red; *cybele* was plain brown, and in one case yellow brown, with little ornamentation. By Miss Péart's assistance I was able to obtain a complete series of drawings from egg to chrysalis of each species, and of the several moults of each, and I propose to introduce these figures in course of Vol. 2, Butterflies of N. A.

*Cybele* was flying this year at Coalburgh, on the 1st of June, and these early examples must have come from larvae that began to feed after hybernation in March, as the food plant then would first appear above ground, so that the larval period after hybernation, when in the natural state, would be two months shorter than in the cases related above.

With regard to the food plant, I used every species of wild violet accessible from the woods, and during the winter cultivated species, and discovered no preference for one more than another. The wild violets were in flower part of the time, and the flowers were eaten by the caterpillars with avidity. The contrast between the habits of these larvae and those of other genera not far separated from them, according to the received arrangement, is something remarkable—as *Grapta*, for instance. One is in the preparatory stages nine months in the year, is impatient of confinement, extremely tender and raised only by the greatest care; the other is hardy, indifferent to confinement, and completes its cycle in about thirty days, from the laying of the egg to the appearance of the butterfly; one is single brooded, the other many brooded, at Coalburgh there being three or four. The number is probably dependant in any latitude upon the length of the season.

There are one or two points in the life history of the larger Argynnidæ that are not yet clear. With us, *cybele* ♂ is on the wing from the 25th of May to the 10th of June, as I have noticed for several successive years. Probably *aphrodite* nearly as soon, and *diana* first appears about the 20th of June. Shortly after the 1st of June the ♀ of

*cybele* is to be seen, and both sexes abound in the clover fields. By the end of June *cybele* has become scarce, and the individuals to be seen have lost their freshness and are broken and worn. It is certain that these early appearing females have not matured eggs and laid them, because at no time from June to August will anything but rudimentary eggs be found by dissecting, and the eggs do not become distinguishable to the eye until August. They then mature rapidly, and in a few days attain full size. I am confident that no eggs are laid till August. But about the first of that month and all along to near the end of it, there appear in great numbers both fresh males and females, as if just from chrysalis, with no abrasion of the hairs on thorax between the wings, which spot is the first to show wear. (I doubt if an *Argynnis* could fly two days without thus giving evidence of it.) There are flying at the same time many worn individuals, especially females. These last are the first to deposit their eggs, but shortly after, and up to the time of frosts, the others also are in condition to do the same. I see no explanation of the appearance of these freshly emerged butterflies than that they have formed part of the brood of caterpillars hatched the previous fall, some of which brood yielded the butterflies that came out in May and June, and the remainder continued in the larval or chrysalis state until August, and upon these last the perpetuation of the species largely depends, for nine-tenths of the June flight must have been destroyed long before August. If I am right, the preparatory stages of the August *cybele* must consume eleven months out of the twelve.

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### CATOCALA WHITNEYI, *N. sp.*

BY G. M. DODGE, GLENCOE, DODGE CO., NEBRASKA.

Expands  $1\frac{1}{2}$  inches. Primaries light gray, the outer third brownish, with a triangular gray spot near the apex. A narrow black line near the base of the wing extends from the costa to the submedian vein. Parallel to this and farther out, a black patch, narrowest at the costa and broadest on the second median veinlet, extends nearly across the wing, ending at the submedian vein. A triangular black patch surrounds the brownish reniform spot, and immediately back of this a curved black line reaches from the sub-dorsal vein to the second median veinlet. The secondaries

are yellow. The black median band is curved, constricted in the middle and ends abruptly at the submedian vein. The marginal band is broadest at the apex, is sometimes broken opposite the termination of the median band, and extends but little beyond the submedian vein. There is a small yellow apical spot. Fringe on fore wings brown; on hind wings whitish, partly brown at base.

Beneath the prevailing color is yellow, being lighter outwardly. The median band of the posteriors is narrower than above, and prolonged by scattered black scales toward the anal angle. The marginal band is unbroken. Lunule black. Thorax and collar light gray. About one-third or less of the specimens taken are brown instead of gray. The median band also varies in width.

I name this species in honor of Mr. C. P. Whitney, of Milford, New Hampshire. My specimens were taken at Ohio, Ill., but it also occurs here. It is the only *Catocala* that I have ever seen attracted by flowers.

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## THE FOOD-PLANTS OF EUROPEAN BUTTERFLIES.

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### *Second Notice.*

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BY SAMUEL H. SCUDDER, CAMBRIDGE, MASS.

The third and concluding part of Kaltenbach's work (*Die Pflanzenfeinde aus der Classe der Insecten*), has just been received in this country, and contains the following notices of the food plants of European butterflies, in addition to those previously given.\* The numbers in parentheses refer to the former list.

1. *Melanargia galathea*—*Phleum pratense*.
2. *Erebia medusa*—*Panicum*, *Setaria*.
3. " *æthiops*—*Dactylis*.
4. " *ligea*—*Milium effusum*.
5. *Satyrus hermione*—*Holcus lanatus*.

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\* See CANADIAN ENTOMOLOGIST, vi, 21-25.

6. *Satyrus circe*—Lolium, Bromus, Anthoxanthum.
7. " *briseis*—Sesleria and other grasses.
8. " *semele*—Several species of Aira.
9. " *dryas*—Avena elatior.
10. *Pararge mæra*—Poa annua, Glyceria fluitans, Hordeum murinum, Festuca.
11. " *megæra*—Triticum and other grasses.
12. " *ægeria*—Triticum repens.
13. " *achine*—Lolium teriueleutum, Carex.
14. *Epinephele janira*—Poa annua and other grasses.
15. " *ida*—Triticum cespitosum.
16. " *tithonus*—Poa annua.
17. " *hyperantus*—Miliun effusum, Poa annua, P. pratensis.
18. *Coenonympha hero*—Elymus Europæus and other grasses.
19. " *iphis*—Brachypodium sylvaticum, Cynosurus and other grasses.
20. " *arcania*—Melica nutans.
21. " *corvinna*—Triticum cespitosum, Carex gynomane.
22. " *pamphilus*—Poa, Anthoxanthum.
23. " *tiphon*—Festuca elatior.
24. (12). *Vanessa L. album*—Hippophae rhamnoides, Gooseberry, Birch, Purple willow.
25. (15). " *antiopa*—Salix capræa.
26. (32). *Melitæa maturna*—Fagus sylvatica, Scabiosa.
27. (34). " *cinxia*—Aira canescens.
28. (46). *Thecla W. album*—Prunus spinosa.
29. (47). " *ilicis*—Quercus.
30. " *quercus*—Quercus.
31. (59). *Lycæna icarus*—Medicago minima.
32. (67). " *semiargus*—Anthyllis vulneraria.
33. (86). *Pieris daplidice*—Diplotaxis tenuifolia.
34. (87). *Aporia cratægi*—Quercus.
35. *Thais polyxena*—Quercus ilex.
36. (97). *Syrictus malvæ*—Fragraria vesca, Agrimonia eupatoria.
37. *Hesperia thaumas*—Aira montana, Festuca, Phleum.
38. " *lineola*—Arrhenatherum avenacium.
39. (100). *Hesperia sylvanus*—Avena pratensis, Holcus lanatus, Festuca.

## MICRO-LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KENTUCKY.

(Continued from page 97.)

## COLEOPHORA.

[Antennae and palpi both simple.]

*C. zelleriella*. *N. sp.*

Slate color, tinged with ochreous; apex of the abdomen yellowish; two longitudinal dusky lines on top of the abdomen, which, however, are invisible in the dead specimen. *Al. ex.*  $\frac{1}{8}$  inch. Kentucky.

The case is ochreous, slender, cylindrical, tapering a little to each end, and compressed or pinched at the posterior end, so as to divide it into three small ridges. It is about half an inch long, and was found adhering to the bark of sugar trees (*Acer saccharinum*.)

*C. argenti-albella*. *N. sp.*

Silvery white; some parts of the legs and under surface tinged with yellowish. *Al. ex.*  $\frac{1}{8}$  inch. Kentucky. Larva and food plant unknown. The long, slender case was found adhering to the bark of beech trees (*Fagus Americana*).

*C. gigantella*. *N. sp.*

White, with seven longitudinal streaks upon the primaries, golden or ochreous yellow according to the light; one extends from the base just within the costal margin to the beginning of the ciliae. Two other parallel and oblique ones from the base near the costa to the dorsal margin near the apex; these are in the apical part of the wing, between the costal one and the first oblique one, and the seventh is within the fold, extending from the base to the dorsal ciliae.

*Al. ex.*  $\frac{5}{8}$  inch. Collection of Mr. Wm. Saunders, London, Ont.

*C. aeneusella*. *N. sp.*

Greenish bronzy; posterior wings pale fuscous. *Al. ex.* 5 lines. Kentucky.

This species belongs to the section constituting Stephens' genus *Metallosetia*.



[Antennae simple, second joint of palpi tufted at the apex.]

*C. fagi-costicella*. *N. sp.*

Yellowish white; a pale ochreous yellow streak from the base along the middle of the wing to near the end of the disc, where it becomes furcate and passes on into pale ochreous yellow of the apex; dorsal margin pale ochreous yellow, and a pale ochreous yellow streak just within the costal margin. *Al. ex.*  $\frac{1}{3}$  inch. Kentucky. The streaks are all obsolete or nearly so.

The larva and food plant are unknown, and I am perhaps wrong in naming the species for the *habitat* in which I have always found the pupa. I have found it so invariably upon the bark of beech trees as to make me suspect that the larva feeds on beech leaves, or on the moss and lichens which grow upon the bark. The larva case is almost cylindrical, tapering a little to each end, with a bent neck or tube at the anterior end, and compressed or pinched together at the other end, so as to be deeply concave on the upper surface; about the middle or just behind it its outer envelope is scalloped or serrated so as to present three or four deep serratures or processes, looking as if the inside case had been inserted into the small bracts of a young leaf bud, from which the bud had first been removed.

*C. unicolorella*. *N. sp.*

Entire insect grayish drab, unicolorous. *Al. ex.*  $\frac{1}{8}$  inch. Kentucky. Larva and food plant unknown.

This can not be *C. concolorella* Clem., which is yellowish ochreous without markings.

*C. ciliochrella*. *N. sp.*

Silvery white, becoming gradually tinged with reddish ochreous to the apex of the primaries, the ciliae of which are distinctly reddish ochreous; antennae alternately annulate with white and brownish yellow. *Al. ex.* 5 lines. The tuft on the palpal joint is very small.

[Basal joint of the antennae with a small tuft; palpi simple.]

*C. rufa-luteella*. *N. sp.*

Head white; lower portion of the face tinged with yellowish; a spot on the vertex, and tuft of the basal joint of the antennae yellow; antennae white, each joint annulate at its base with yellowish brown, and a few joints at the base entirely of that hue; thorax and anterior wings deep

reddish orange, deeper, almost brown towards the apex; sides of the thorax and costal margin to the ciliae white. *Al. ex.* nearly  $\frac{1}{2}$  inch. Kentucky. Captured in June.

[Basal half of the antennae thickened with scales; palpi simple.]

*C. auropurpuricella.* *N. sp.*

Entire insect, according to the light, golden brown or golden purple with a greenish bronzy hue, especially towards the apex of the primaries, where the greenish tinge is very decided; apical half of the antennae annulate with silvery white. *Al. ex.*  $\frac{1}{8}$  inch. Coll. Mr. Wm. Saunders, London, Ont. (Belongs to *Metallosetia*, Steph.)

[Basal joint of the antennae thickened with scales; palpi tufted.]

*C. lineapulvella.* *N. sp.*

White, faintly tinged with ochreous yellow; dorsal margin and apex of the primaries more distinctly yellowish; two rather indistinct ochreous yellow lines begin before the middle of the wing and pass back, one to the apex and one to the dorsal margin before the apex, the apical line giving off a faint branch to the costal margin. Ciliae pale ochreous; the entire wing, except near the base, dusted with dark brown specks, which are arranged in lines more or less parallel to each other; antennae annulate with ochreous yellow. *Al. ex.* 5 lines. Kentucky. Taken at the lamp.

I have taken on the wing many other species, but I refrain from describing them until their food plants are known, a plan which I had perhaps also better have adopted with some of the above, for many of the species of this genus resemble each other so closely that it is well nigh impossible to give written descriptions by which they can be identified.

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SIGNS USED TO DENOTE SEX.—I have often been puzzled to account for the origin of the signs in use among naturalists to denote the male ( $\sigma$ ) and the female ( $\phi$ ) sexes; but the other day, while reading an astronomical paper, I came across a fact which seems to offer a solution of the difficulty. It appears that the first sign ( $\sigma$ ) has been used from remote antiquity to signify the planet Mars, and is a rude representation of a spear behind a shield, fit emblems of the God of War. Ceres, the goddess of corn, was similarly symbolized by the sign used in zoology to denote the female sex, with this slight difference, that in the original astronomical sign, the continuity of the circle is broken on the left side, so that the figure appropriately represents a sickle.—*E. C. Lefroy in Herdwick's Science Gossip.*

ON TWO SPECIES OF AGROTIS, ALLIED TO  
*A. TRIANGULUM.*

BY AUG. R. GROTE,

*Curator of Articulata, Buffalo Soc. of Natural Sciences.*

Among the material submitted to me for determination by Professor Packard, from the Peabody Academy of Science, are specimens from Maine and Massachusetts of two species of *Agrotis* allied to, but distinct from *A. triangulum*.

*Agrotis attentus. N. sp.*

The eyes are naked. The middle and hind tibiae are armed, but the fore tibiae are without spines; male antennae simple, bristled and pubescent. Fore wings pulverulent brown, paler over the costal region, on which the inception of the geminate lines are marked in dark brown. There is a narrow deep brown basal ray extending to the dentate indistinct t. a. line. Disc not suffused with darker brown between the ordinary spots, which are moderate, pale, with fine dark annuli. Orbicular *spherical*, complete, not pointed inferiorly, as in *triangulum*. T. p. line with its pale centre alone perceivable, denticulated, notched opposite the cell. The subterminal space is not differentiated by any darker tint; the subterminal line is pale, preceded at costa by a very slightly darker brown shade, not always noticeable, and not at all like the determinate mark of *triangulum*. Male hind wings almost whitish; female darker. Thorax and head like fore wings. Beneath the fore wings are brown, with the exterior line indicated; hind wings with brown costal region, else pale, with faint discal spot and a double subterminal line marked on the costal region. Maine; two specimens; expanse, 36 m. m.

*Agrotis perattentus. N. sp.*

Eyes naked; fore tibiae unarmed, middle and hind tibiae spinose; male antennae simple, bristled and pubescent. Color of *A. attentus*, but brighter, rosy brown and more like *triangulum*, on account of the discal field before the orbicular and between the spots being suffused with dark brown shading. Orbicular *spherical*, pale; claviform indicated in outline; a deep brown shading accompanies the basal dash. Reniform large and wider than in *triangulum*. Ordinary lines distinct, geminate, dark brown; t. p. line with its inner line distinct, lunulate; its outer line los

against the darker brown subterminal space, which is differentiated by its deeper color and which it inwardly limits. Subterminal line indicated by the difference in color between the subterminal and terminal spaces, the latter concolorous with the rest of the wing. Hind wings pale testaceous fuscous in ♂, more fuscous in ♀. Beneath a common fuscous line and dots; the tint is testaceous, with fuscous powdering; fore wings the darker, with ruddy costal edge. Mass.; Me.; expanse, 32 to 36 m. m.

Both these species are slighter bodied than the European *A. triangulum*, and differ in ornamentation by the shape of the ordinary spots, the conformation of the t. p. line, and the pallor of the hind wings.

*Mamestra renigera* (Steph.)

This species, referred in my "List" to *Hadena* (p. 16), belongs to *Mamestra*, and should be interpolated on page 13 l. c., between *M. cinnabarina* and *M. laudabilis*.

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#### NOTES ON THE LARVA OF LEUCANIA PSEUDARGYRIA, GUENEE.

BY F. B. CAULFIELD, MONTREAL, P. Q.

On April 18th of this season, while searching for insects on Montreal Mountain, I found under a stone at the foot of a hickory tree, a larva, of which the following is a description:

Length two inches. Form cylindrical, slightly annulated. Head reddish yellow, with two brown streaks, and marbled with lines and dots of the same color; semi-transparent, shiny, slightly bilobed, with a few scattered hairs of a whitish brown color. Mandibles brown.

Body above dirty greenish grey, with darker spots and blotches, a faint white dorsal line, and another of the same color a little above the spiracles; sides light greenish grey, minutely spotted with brown, with a few scattered hairs of a brown color, tipped with yellowish white. Under-surface, feet and prolegs very light greenish grey.

I placed this larva in a box with some earth, but owing to the backwardness of the season I could not find any food for it. It went under the earth on April 21st, and turned to a chrysalis on April 23rd. The imago emerged on May 20th, and proved to be *Leucania pseudargyria*, Guen.

That this larva hibernated there can be no doubt, and I believe, as a rule, that those larvæ which lie dormant during the winter, when spring

comes, feed again for a short time before changing to chrysalis, but this instance proves that food is not always necessary to them after they have hibernated, as there was not even a bud to be seen when I found it. Of course under its natural conditions it would have partaken of some food as soon as vegetation appeared, otherwise it would have pupated in the autumn. This deviation from the usual habit may be attributed to its changed conditions, the warmth of the house hastening its transformations.

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#### FIRST ANNUAL REPORT OF THE COUNCIL OF THE MONTREAL BRANCH OF THE ENTOMOLOGICAL SOCIETY OF ONTARIO.

During the summer of 1873 a fortunate circumstance occurred to which this Branch owes its origin. The following gentlemen, viz., Wm. Couper, F. B. Caulfield, Wm. Hibbins, C. W. Pearson and G. B. Pearson, met by chance on the Montreal Mountain, where the subject was discussed, and it was then decided to hold a meeting at the residence of Mr. Caulfield, in order to make further arrangements for its formation. This meeting was held on the 30th of August, when it was resolved to form a branch in connection with the Entomological Society of Ontario, and the Secretary *pro tem.* was instructed to write to the parent society, asking permission to form a Branch Society in this city. This proposition was at once accepted by the parent Society.

On the 16th of October the following officers were elected for the ensuing year :—William Couper, President ; M. Kollmar, Vice-President ; F. B. Caulfield, Secretary-Treasurer ; Council—G. J. Bowles, P. Knetzing and C. W. Pearson ; Curator, William Hibbins.

By-Laws were framed for the guidance of the Branch, which were approved by the parent Society. Our monthly meetings have been regularly held and well attended, and your Council congratulate the Society on the benefits derived. During the eight meetings which have been held, independent of the production of original communications on Entomology, there were remarkably good exhibitions of insects, which also tended to give additional information to members.

The first meeting of the Branch in August, 1873, consisted of seven members, and since then five additional members have been elected.

The following papers were read during the winter months :

"A Dissertation on Northern Butterflies," by William Couper ; "On the Cicindelidae Occurring on the Island of Montreal," by F. B. Caulfield ; "On Some of the Benefits Derived from Insects," by F. B. Caulfield.

The following works have been donated during the year :

"On Some Remarkable Forms of Animal Life from the Great Deepes of the Norwegian Coast," by G. O. Sars, 1 vol.; "On Norwegian Crustaceans," by G. O. Sars, 2 vols.; "Synopsis of the Acrididae of North America," by Cyrus Thomas, 1 vol.

Your Council would suggest that the Curator procure store boxes for the preservation of the specimens obtained for the Society during the approaching season. In this way the nucleus of a collection can be formed prior to the purchase of a cabinet, which your Council trusts the Society will be possessed of before next winter.

Your Council would also suggest that members carry note-books wherein to record Entomological observations, especially relative to insects injurious to the crops ; also of such species as are considered beneficial in checking the progress of destructive insects. As this is one of the principal objects of the Society, field notes of this nature are always valuable, and should form subjects of investigation and discussion at our meetings. Attention should be given to the larval forms of insects, as this is a specialty of Entomology from which much knowledge is yet to be obtained.

Your Council strongly impress on the members to use their influence in promoting a knowledge of the importance of the study of Entomology, more especially with agriculturists and horticulturists, in order to enable them to check the ravages of the numerous insects injurious to vegetation.

All of which is respectfully submitted.

WM. COUPER,  
Chairman.

C. W. PEARSON,  
GEO. JNO. BOWLES.

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## NOTES ON THE SPECIES OF OODII OF LOUISIANA.

BY S. V. SUMMERS, M. D., NEW ORLEANS, LA.

The species belonging to this sub-tribe, although small in number, rank with the rarer forms of Carabidæ; they may easily be known by their glabrous body and the confluent eighth and ninth striæ of the elytra. Several of the Oodii bear a superficial resemblance to certain *Amara* allied to *fallax*. With one exception (*O. elegans*) the species are all Atlantic, occurring more abundantly southward. *Oodes fluvialis* must be considered a typical northern species, occurring rarely near St. Louis, Mo., but more abundant at Rock Island, Ill. *O. elegans* has occurred with Dr. Le Conte along the Gila River, in Arizona. We may expect additional species from the Southern Pacific region and the western source of the Rio Grande.

*Lachnocrepis parallelus* (Say).

A single ♂ specimen taken in November, under a partially submerged log on the Jackson R. R., near New Orleans. Dr. Horn gives the length 0.42 inch (Trans. Am. Ent. Soc., v. 3, p. 106); my specimen measures 0.44 inch long. Color black, somewhat shiny; basal angles of thorax reddish brown. I have not been able to find this species in any of the New Orleans collections. I have seen one in Mr. Trabrandt's cabinet, from Mexico, near the Rio Grande.

*Anatrichis minuta* (Dej.)

Our smallest Oodii; length, 0.20-0.25 inch. Rather rare. Specimens taken adhering to under surface of logs near streams, and on sifting mud from roots of plants over water. This species seems not to have occurred in Louisiana collections before last winter.

*Oodes amaroides* (Dej.)

Length, 0.34-0.40 inch. More than twenty specimens taken in galleries under logs, in very damp or muddy places. The species of the sub-genus *Oodes* (Chaudoir), have the ability to remain under water for nearly an hour at a time, and are seldom found running on the ground.

*Oodes Americanus* (Dej.)

Length, 0.58 inch. A single ♂ taken under a rail on the Ponchartrain R. R. Several others occur with Mr. Trabrandt. Our largest and rarest

species; none of my *fluvialis* measure over 0.52 inch. Dr. Horn gives this and the preceding species as 0.50 inch long (*ante*.)

*Oodes cupraeus* (Chaud.)

Several specimens taken by Mr. Trarandt. I have found this species pretty common near St. Louis, Mo., on baling water over mud flats. They take flight very readily, and may be found running on the ground on warm days, but I have never been able to find them or *Lecontei* remain under water longer than most Carabidæ. The La. specimen before me is greatly mutilated, and I am reluctant to give its measurement. The Missouri species give 0.40 inch long.

*Oodes Lecontei* (Chaud.)

Length, ♂, 0.36 inch; ♀, 0.40 inch. Not rare. Many specimens taken under logs near water on bailing near the shore; also running on the ground in July and August. It is a more robust species than *cupraeus*, less shining and with punctured striæ. A single specimen taken somewhere on the coast of Miss., during the stoppage of steamer to "wood up," in June.

*Oodes 14-striatus* (Chaud.)

Length, 0.42-0.47 inch. Common everywhere near N. O. during the summer; found under logs and running on the ground near water, and frequently under loose bark in the woods. The specimens have a decidedly greenish tinge when alive. They are not as active as the *Oodes* and *Stenous* groups. Mr. Trarandt informs me that they do not occur abundantly every year. They are also found in Texas and Mexico.

*Oodes texanus*, Lec.

Length, 0.42 inch—♂. A single specimen taken by C. Trarandt while collecting together, and given me as a *14-striatus*, from which it is at once distinguished by the punctured striæ. The specimen occurred under some rail-road ties on the Ponchartrain R. R., on high ground, not near water. Dilligent search has since failed to discover others.

*Evolenes impressus*, Lec.

Length, 0.37 inch—♀. A single specimen taken near New Orleans and given me by Mr. Em. Trochammur. This is the rarest *Oodii* occurring in La. Any enlargement on descriptions of species would seem out of place, but would refer all to Dr. Horn's admirable and complete synopsis in Trans. Am. Ent. Soc., Vol. 3, No. 2, 1870.



*Crinus scrophularia*, Auct.

A unique of this European *Curculio* was taken on wood wharf, June 30th. There can be little doubt of the correctness of this determination. My specimen is 0.16 inch long (exclusive of rostrum). Body black. Rostrum shorter than thorax, slightly arcuate; antennæ inserted about two thirds from tip, piceous; club somewhat paler. Thorax much narrower than base of elytra, covered with dense prostrate yellowish hairs, and with an elevated transverse ridge at middle; elytra somewhat triangular, blackish, coarsely punctured and with four black longitudinal vittæ, dotted with whitish. A rather large, oblong, dense black spot, margined posteriorly with whitish hairs, placed on the suture, near the scutellum, and a similar but smaller spot at apex. Legs blackish, more or less speckled with whitish hairs.

## ANTICOSTI COLEOPTERA.

COLLECTED ON THE ISLAND IN 1873, BY WM. COUPER, MONTREAL.

(As determined by J. L. Leconte, M. D.)

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| <i>Notiophilus sibiricus</i> , <i>Motsch.</i>           | <i>Chrysobothris trinervia</i> , <i>Lec.</i>    |
| <i>Carabus palustris</i> , <i>Fischer.</i>              | <i>Elatér mixtus</i> , <i>Lec.</i>              |
| “ <i>lapilayi</i> , <i>Laporte.</i>                     | <i>Agriotes fucosus</i> , <i>Lec.</i>           |
| <i>Calathus ingratus</i> , <i>Dej.</i>                  | <i>Limonium quercinus</i> , <i>Dej.</i>         |
| “ <i>confusus</i> , <i>Lec.</i>                         | <i>Sericosomus incongruus</i> , <i>Lec.</i>     |
| <i>Pterostichus coracinus</i> , <i>Lec.</i>             | <i>Corymbites resplendens</i> , <i>Esch.</i>    |
| “ <i>lucotii</i> , <i>Lec.</i>                          | “ <i>aeineicollis</i> (Kendalli), <i>Kirby.</i> |
| <i>Harpalus pleuriticus</i> , <i>Kirby.</i>             | “ <i>spinosus</i> , <i>Lec.</i>                 |
| <i>Boletobius pygmaeus</i> , <i>Mann.</i>               | “ <i>aratus</i> , <i>Lec.</i>                   |
| <i>Creophilus villosus</i> , <i>Kirby.</i>              | <i>Eros coccinatus</i> , <i>Say.</i>            |
| <i>Anthobium dimidiatum</i> , <i>Mels.</i>              | <i>Podabrus basillaris</i> , <i>Say.</i>        |
| <i>Necrophorus vespilloides</i> , <i>Herbst.</i>        | “ <i>laevicollis</i> , <i>Kirby.</i>            |
| “ <i>mortuorum</i> (pygmaeus),                          | <i>Telephorus fraxini</i> , <i>Say.</i>         |
| <i>Kirby.</i>   | <i>Dolichosoma foveicollis</i> , <i>Kirby.</i>  |
| <i>Hydnobius substriatus</i> , <i>Lec.</i>              | <i>Hadrobregmus foveatus</i> , <i>Kirby.</i>    |
| <i>Epuraea boreella</i> , <i>Er.</i>                    | <i>Spondylus upiformis</i> , <i>Mann.</i>       |
| <i>Omosita colon</i> , <i>Er.</i>                       | <i>Criocephalus agrestis</i> , <i>Kirby.</i>    |
| <i>Byrrhus americanus</i> , <i>Lec.</i>                 | <i>Pachyta monticola</i> , <i>Rand.</i>         |
| <i>Heterocerus substriatus</i> , <i>Kies.</i>           | <i>Acmaeops pratensis</i> (strigilata.)         |
| <i>Aphodius fimetarius</i> , <i>Ill.</i>                | <i>Leptura pedalis.</i>                         |
| “ <i>uricola</i> , <i>Mels.</i>                         | <i>Donacia emarginata</i> , <i>Kirby.</i>       |
| “ <i>granarius</i> , var. <i>spretus</i> , <i>Hald.</i> | <i>Syneta tripla</i> , <i>Say.</i>              |

*Pachybrachis atomarius*, *Mels.*  
*Bromius vitis*, *Fabr.*  
*Anaspis rufa*, *Say.*  
*Hylobius pinicola*, *Couper.*  
*Dryocaetus septentrionis*, *Hbst.*

*Dendroctonus rufipennis.*  
*Amara*, not determined.  
*Cyphon*, indeterminate.  
*Graptodera*, not named.  
*Ceutorhynchus*, not determined.

### ON SOME OF OUR COMMON INSECTS.

#### 17.—THE CURRANT GEOMETER OR MEASURING WORM *—Ellopia (abraxis) ribearia*, Fitch.

BY THE EDITOR.

This insect is now becoming very abundant in most parts of Ontario, and is a very troublesome pest. Its peculiar mode of progression will enable one to readily distinguish it from the common Saw-fly caterpillar, for, having its feet placed at each extremity, it arches its body into a sort of loop at every step, and is hence popularly called a measuring worm or span worm.

Fig. 22 (after Riley) shows this caterpillar in various attitudes. At 2 it is represented hanging from a silken thread which it has the power of

Fig. 22.



spinning at will, and by means of which it is enabled to lower itself suddenly from the bush when danger threatens, and remains suspended in mid air until it can safely return to its former position. When full grown, it measures an inch or a little more in length. Its head is of a medium size, white, bilobed with a large round black spot on the upper part of each lobe, a short black stripe across the front, a little above the mouth, with a small spot of the same color on each side of it; there are also a few short black hairs scattered over its surface; jaws black. The body above is whitish, with

a number of black spots of different sizes on each ring or segment; there

is a wide yellow stripe down the back, and another of the same character along each side, but somewhat broken. The under side is white, with a slight tinge of pink, and also spotted with black, with a wide yellow stripe down the middle. The feet are blackish; prolegs yellow, dotted with black.

When full grown, the larva descends to the earth and buries itself a little below the surface, where it is transformed into a dark brown chrysalis about half an inch long, and remains in this inactive state from two to three weeks.

The moth, see fig. 23 (after Riley), is of a pale yellowish color, with several dusky spots varying in size, form and distinctness in different specimens; sometimes they are so arranged as to form one or two irregular bands across the wings; when these latter are expanded they measure about  $1\frac{1}{4}$  inches. Soon after the moths escape they pair and shortly the female deposits her eggs on the twigs and branches of the gooseberry and currant bushes, where it is said they remain unchanged until the following spring.

Fig. 23.



This insect is a native of America, and was formerly confined to the wild gooseberry and currant bushes, on which we still occasionally see them. The larvae are found in various stages of their growth, from the 1st to about the 20th of June, and will feed on the black currant as well as on the red and white currant and gooseberry. The moths begin to appear during the first days of July, and are very common for two or three weeks following.

Powdered hellebore mixed with water and used with a watering pot, or Paris green mixed with twenty times its weight of flour and dusted on the bushes, will be found effectual remedies for the destruction of this caterpillar. The habit it has of letting itself down from the bush with a silken thread, and remaining suspended, may also be turned to practical account in its capture, for if, after tapping the infested bushes, a forked stick or some similar instrument is passed under it, all the hanging threads may be caught and the larvae drawn out in groups and crushed with the foot.

## EDITORIAL SUMMARY.

We have been kindly favored with a copy of the "Sixth Annual Report on the Noxious, Beneficial and Other Insects of the State of Missouri," by C. V. Riley, State Entomologist, 8vo., pp. 160, with 55 illustrations. Both entomologists and agriculturists are laid under lasting obligations to Mr. Riley for these excellent yearly reports on the life history and depredations of many of our insects. The present Report opens with "Notes of the Year," under which heading there are given some practical observations on the Codling Moth, the Colorado Potato Beetle and the Cotton Worm. Next follows a lengthy and exhaustive chapter of 56 pages on the Grape Phylloxera, in which is brought together in a consecutive form all the facts hitherto published in reference to this interesting insect. The Blue Caterpillars of the Vine then claim attention, each species being nicely illustrated. Detailed accounts are given also of Ham Beetles, the Clover Worm, the legged Maple Borer, the Raspberry Root Borer, the Northern Brentthian and the Jumping Sumach Beetle. A chapter on Beneficial Insects is next in order, in which the life history of a parasite on the common white grub is detailed. Then follow observations on the Dominican Case Bearer, the Yucca Moth, Hackberry Butterflies, closing with an interesting chapter on the Katydid. Mr. Riley seems admirably adapted to fill the position in which he has been placed, and we sincerely hope he may long be spared to prosecute the work he loves so well.

INTERESTING CAPTURES.—Mr. F. C. Lowe, of Dunnville, has recently been on a collecting tour in the county of Essex, and we have been favored with a sight of some of his captures. Among the more interesting insects secured, we would especially mention a very handsome and perfect specimen of *Papilio marcellus*, with the ground color an unusually fine pale green. Mr. Lowe saw three of these insects on the wing in the neighborhood of North Ridge, about four miles from Essex Centre, on the Canada Southern R. R., but only succeeded in capturing one of them. *Papilio thoas*—several taken. This insect was quite common in almost every clover field in that neighborhood. Mr. Lowe took two specimens of *thoas* last season on the River St. Clair, near Port Lambton. *Thyreus nessus* also common in clover fields; *Hesp. oilens*, several specimens; also the following, all captured between the 10th and 20th June: *Erebia nephele*, common; *Eudamus tityrus*, common; *Papilio turnus* and *P. troilus*; *Nisoniades catullus*, not rare; *M. tharos*, common; *P. Americana*, common; *Hesp. bathyllus*, rather plentiful; *Hesp. zabulon*, very common; *Nisoniades persius*, *Trichius bidens* and *Desmocerus palliatus*.

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